Craftsman-Style Bride's Chest

Functionality and beauty combine in this classic piece of American fine furniture. Best of all, it's every bit as practical as it is attractive.

You don't have to be a new bride to appreciate the beauty and utility of this traditional chest. The Craftsman-style design is loosely based on a Gustav Stickley original from the early 1900s. The design is both timeless and straightforward to build.

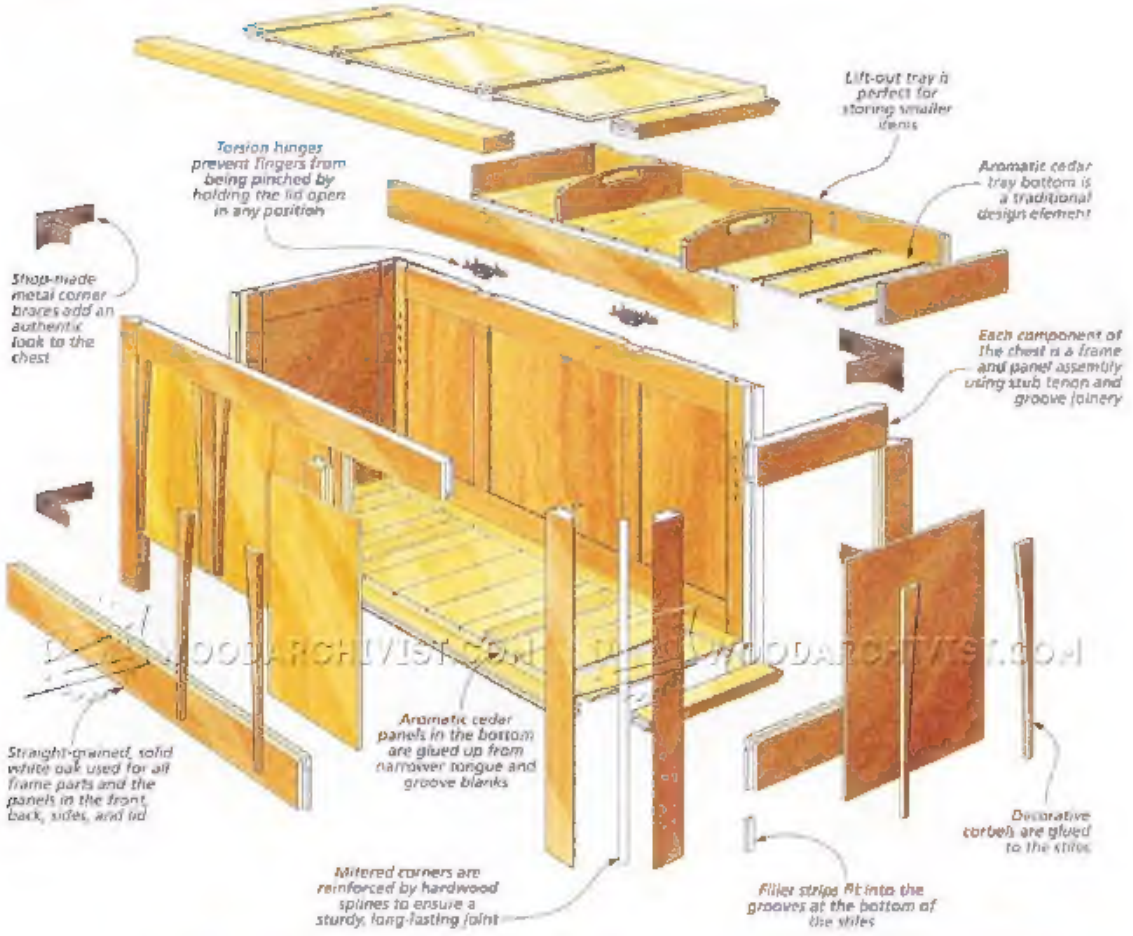
The chest not only looks attractive, but it also offers lots of storage. In addition to the large interior space, I added a lift-out tray for keeping smaller items out of the main compartment.

The chest consists of six frame and panel assemblies: the front, back, sides, bottom, and lid. While there are a few subtle differences between the panels, the techniques used to make them all are the same throughout the project. I used straight-grained white oak, the traditional choice for Craftsman-style furniture, for the frames and panels.

Although the woodworking techniques are not unusual, I did try my hand at a bit of metalworking to make the hardware. I was struck by the hand-wrought steel corner braces on the original chest. But when I looked at the options for similar hardware, I wasn't able to find anything comparable.

Instead, I used some steel from the hardware store and a few pyramid-head nails. I found the steel was easy to work using common shop tools, and a few simple metalworking techniques. With the addition of a patina solution, it makes a convincing instant antique.

Construction Overview / OVERALL DIMENSIONS: 42½"W x 17⅝"D x 22"H



▲ The lift-out tray features an aromatic cedar bottom. The tray is also divided into three sections for convenient storage.

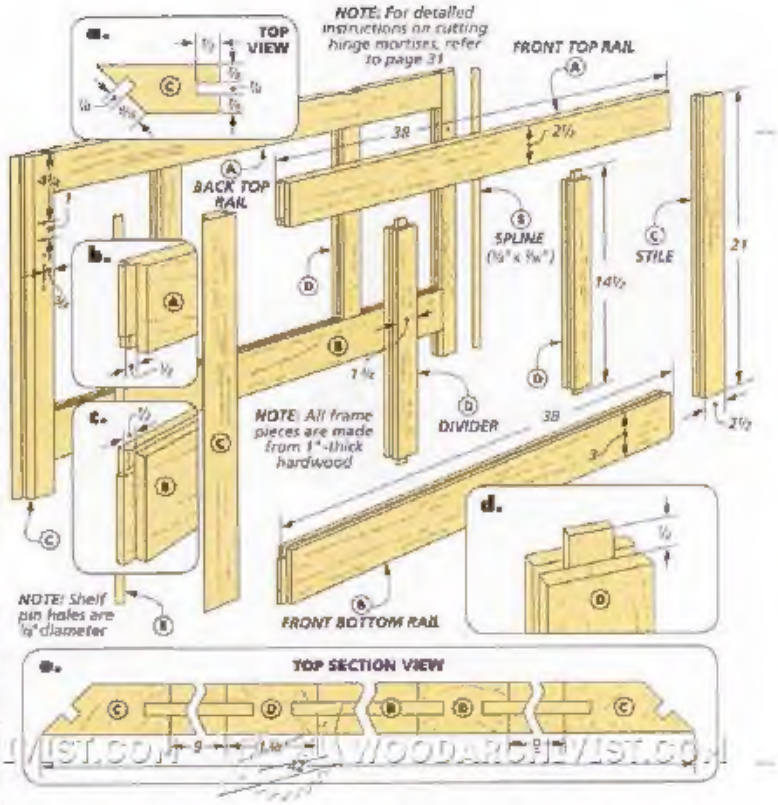
▲ The process for chemically antiquing the steel braces is pretty straightforward, and the pyramid-head nails add authenticity.

▲ In addition to the quartersawn white oak, the decorative corbels give the chest a classic, Craftsman design element.

Making the FRAMES

The chest is made up of a group of frame and panel assemblies: The front, back, lid, bottom, and two sides. Each one is made up of a hardwood frame and solid-wood panels. This frame and panel design relies on stub tenon and groove joinery, which is both strong and easy to cut at the table saw.

You'll note that the stiles on each of these frames are mitered and splines are added to help with alignment during the glueup. I started by making the front and back frames, then the two sides.



FRONT & BACK FRAMES

The front and back frames are identical except for the hinge mortises in the back top rail (left drawing below) For more on the hinge mortises, refer to page 31.

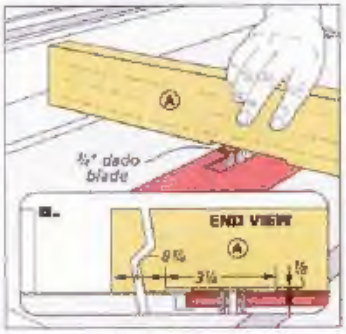
THICKNESS. I started by planing several 5/4 boards down to a final thickness of 1". The thickness is not only true to the original Stickley design, but it's perfect for a sturdy chest that will potentially see several generations of use.

You can now cut all the rails, stiles, and dividers to final width and length. Note that the stiles for the side assemblies are the same as those used on the front and back. Cut all eight of them plus a couple extra to use as cauls when you assemble the frames. I'll get to the details on that later.

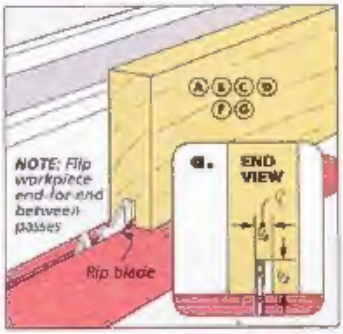
JOINERY CUTS. The box below walks you through the process for cutting the grooves and stub tenons needed for the joinery. The center drawing shows how I used a standard rip blade to cut the wide, centered groove for the panels in all the frame pieces.

After that, install an auxiliary rip fence and an auxiliary fence on the miter gauge, as well. The auxiliary rip fence allows you to bury the dado blade for cutting accurate tenons. Test the fit

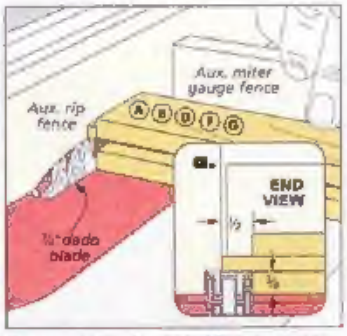
How-To: MAKE THE FRAME PARTS



Hinge Mortises. With an auxiliary fence on the miter gauge, use the rip fence as a stop to nibble away the waste.



Centered Groove. Two passes, each one slightly off-center, allow you to cut a centered groove that will fit the panel.



Tenons. With the dado blade buried in an auxiliary fence, use a miter gauge to cut the tenons on the frame parts.

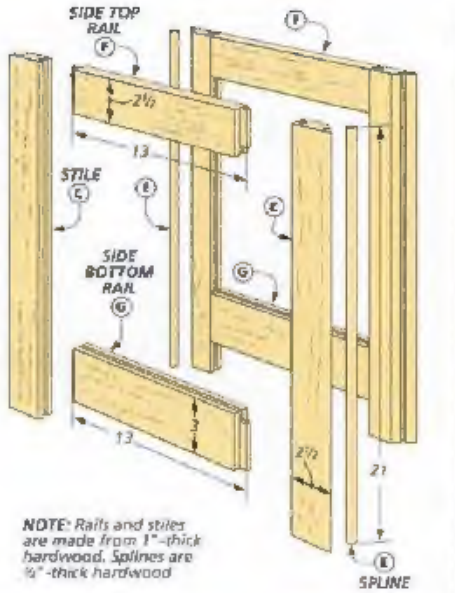
of the tenons in the grooves as you go. You're looking for a snug, slip fit. If it's too tight, you run the risk of splitting out the sides of the grooved pieces. Too loose, and the joint may fail.

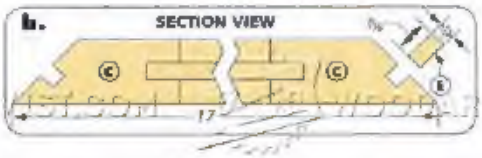
MITER THE STILES. As shown in the drawings, the stiles are mitered and splines are added to reinforce the joints. I started work on them by first mitering each one, including the extras (left drawing in the box below).

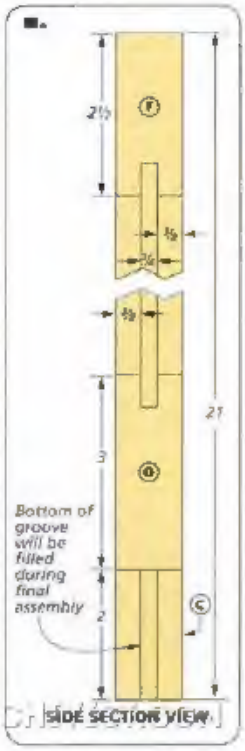
Now is a good time to lay out the locations of the dividers (detail 'e,' opposite page). After that, mark the positions for the shelf pin holes on the stiles and drill them. The main drawing on the opposite page shows the locations.

GROOVE THE MITERS. In the center drawing below, you can see how I installed a ¼" dado blade and set the angle to 45°. Use this setup to cut the angled grooves in the mitered edges of the stiles. Use test pieces to check the setup of both the blade and fence to match those in detail 'a.'

SPLINES. At this point, you're ready to cut the splines that will go in the miters. After resawing some thicker stock and planing it to a thickness of ¼", rip it to final width (right drawing, below). Sneak up on a good fit for the splines. They should slip into the grooves easily.





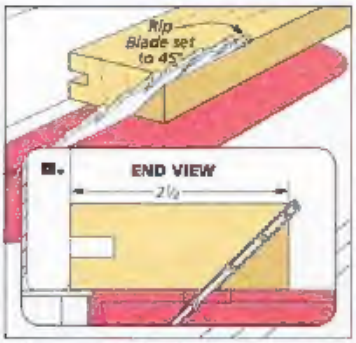


SIDE FRAMES

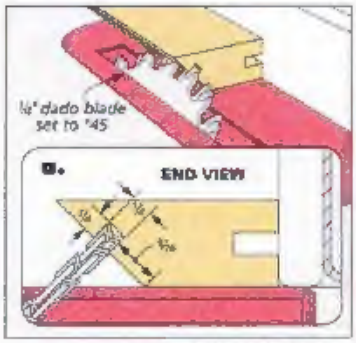
The side frames connect to the front and back with the mitered stiles. They differ only in size. You can start by cutting the top and bottom rails to final size (note the difference in widths). Then cut the grooves and tenons on each, as you did before. You'll use the mitered stiles and the splines you made earlier to complete the side frames.

DRY FIT. Dry fitting reveals any problem areas with the fit of the components. I checked all the frame assemblies to make sure that each piece fit and that they were square. Afterwards, you can move on to making the panels.

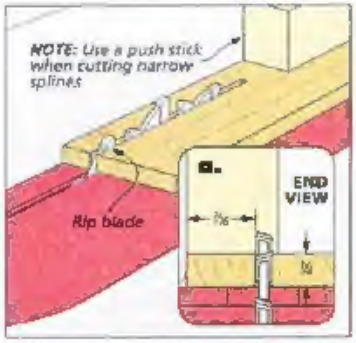
How-To: CUT THE MITERS & SPLINES



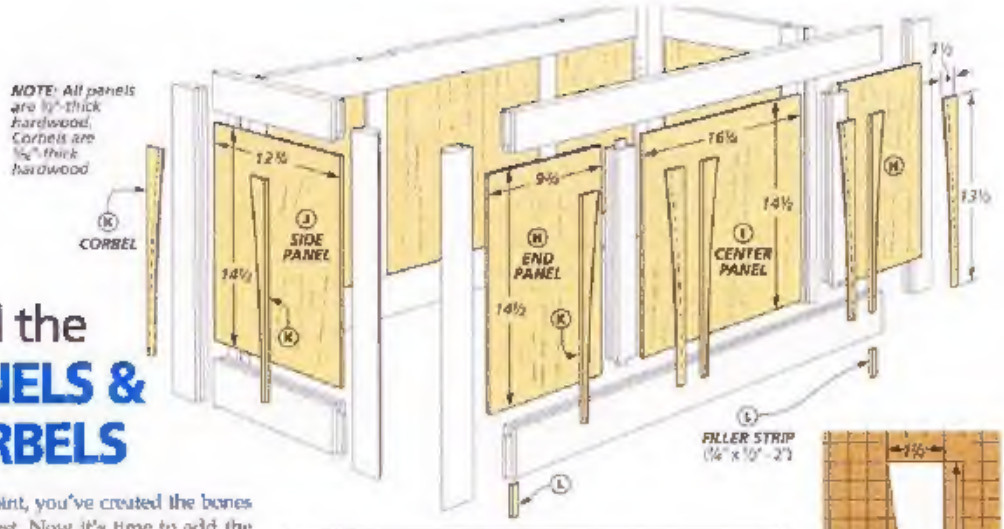
Miter Cut. Tilt the rip blade to 45° and set the fence as shown in detail 'a.' Then miter the edge of each stile.



Groove. Install a ¼" dado blade tilted to 45° and to cut the groove for the spline in the mitered edge of each stile.



Splines. You'll need to start by planing some stock down to ¼" thick, then rip the four splines to width.



Add the PANELS & CORBELS

At this point, you've created the bones of the chest. Now it's time to add the hardwood panels to complete the body. Each panel also receives a pair of decorative corbels. You'll finish up by making a frame and panel bottom for the chest and assembling the components.

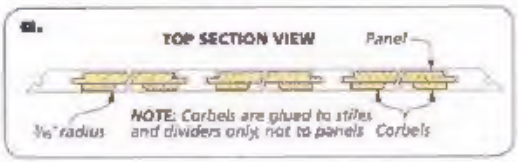
HARDWOOD PANELS. You'll need to resaw and plane some stock for the panels down to the necessary thickness (½"). Then glue up the panels and cut them to final size. With a dado blade buried in an auxiliary fence, rabbet the edges and ends of the panels (left drawing, below).

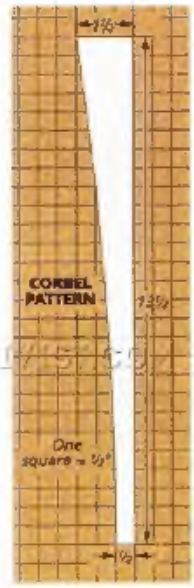
After dry fitting, stain and finish the panels. This ensures that no unfinished edges will peek out when humidity causes the panels to contract.

CORBELS. Corbels glued to the stiles and dividers add to the Craftsman-style look. Once again, you'll have to plane some stock to final thickness (⅜"). I made a hardboard template to lay out the shape of the corbels. Later, you'll use the template to trim them flush after band sawing. Use the pattern at right to lay out the shape.

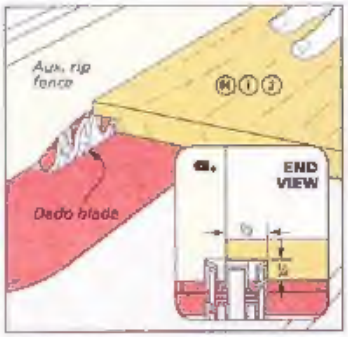
I also made a ¼" hardboard spacer to fit into the grooves in the frame for installing the corbels. Make the spacer a little wider to use during assembly to glue the corbels in place as shown in the center drawing below. A good coat of wax on the spacer helps prevent glue from sticking to the corbels during assembly.

ASSEMBLY. The nice thing about frame and panel construction is that it's easy to assemble and

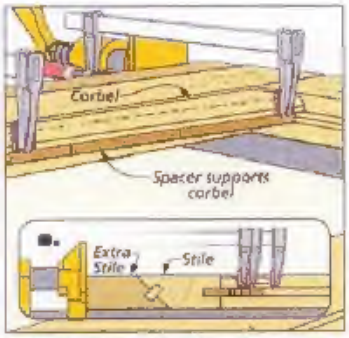




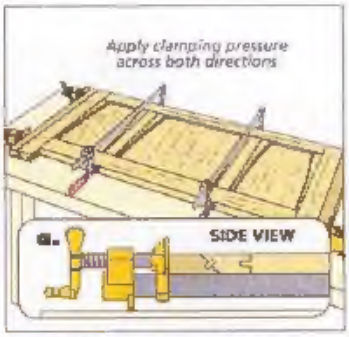
How-To: FRAME PARTS



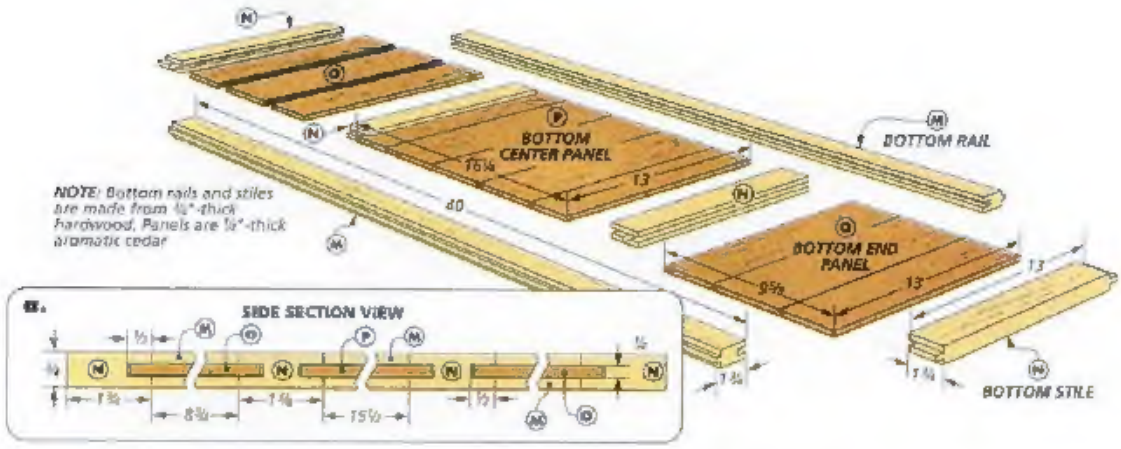
Cutting Tongues. With the table saw set up for cutting rabbets, cut the tongues for a snug fit in the grooves.



Install the Corbels. A hardboard spacer in the groove in the frame supports the corbel as you glue it in place.



Assembly. The extra stiles you made earlier now make the perfect cauls as you glue up the frame and panels.



is virtually self-squaring, just apply a little glue to the tenons on the rails and dividers and add the clamps. Let the panels float freely without glue in the frames. Use the extra stiles you made earlier as cauls (right drawing at the bottom of the opposite page).

FILLER STRIPS. At this point, the grooves in the stiles are visible at the bottom, below the bottom rails. To fill the voids, I cut some filler strips, sized for a snug fit. A little glue is all you need to install them.

GROOVE. After the glue dries on the assemblies, take the front and back to the table saw. You'll need to install a dado blade and then cut a groove on the lower edge of both assemblies to hold the bottom (Figure 1).

BOTTOM. The process of making the bottom is captured in the drawings at right. In Figures 2 and 3 you can see that cutting the centered groove and tenon are just the same as you've been doing for the other assemblies. The first difference is shown in Figure 4, where I cut a tongue on the outside edge of the rails.

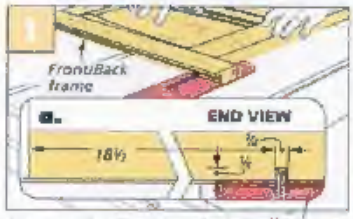
The only other change is that I chose ¼"-thick tongue and groove aromatic cedar paneling for the bottom. Aromatic cedar is a traditional wood for this type of chest as it repels insects.

ASSEMBLE THE CASE

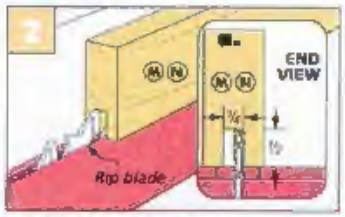
Now is the time to dry fit the assembly to make sure the bottom fits and the corner joints are tight. I glued the bottom into the groove on the front first, and then added the sides and back.

With glue in the grooves on the stiles, add the splines and use a band clamp to bring it all together. Double check for square and let it dry overnight.

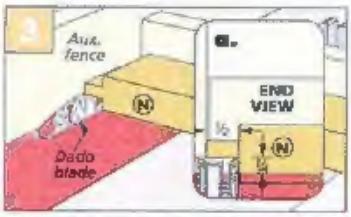
How-To: BUILD THE BOTTOM



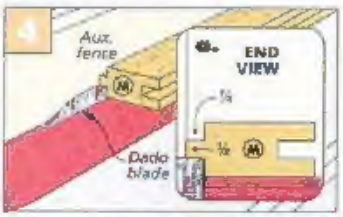
Groove for Bottom. Install a ¼" dado blade and cut a groove in the bottom rails and stiles for the bottom.



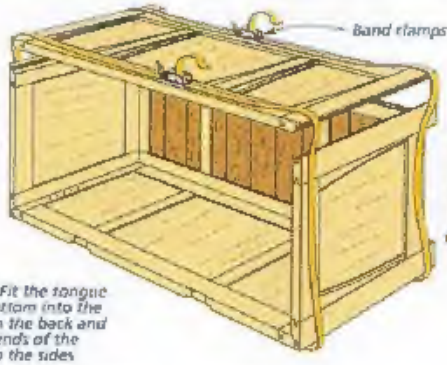
Centered Groove. Cut the centered groove for the cedar panels in the rails and stiles in two passes.



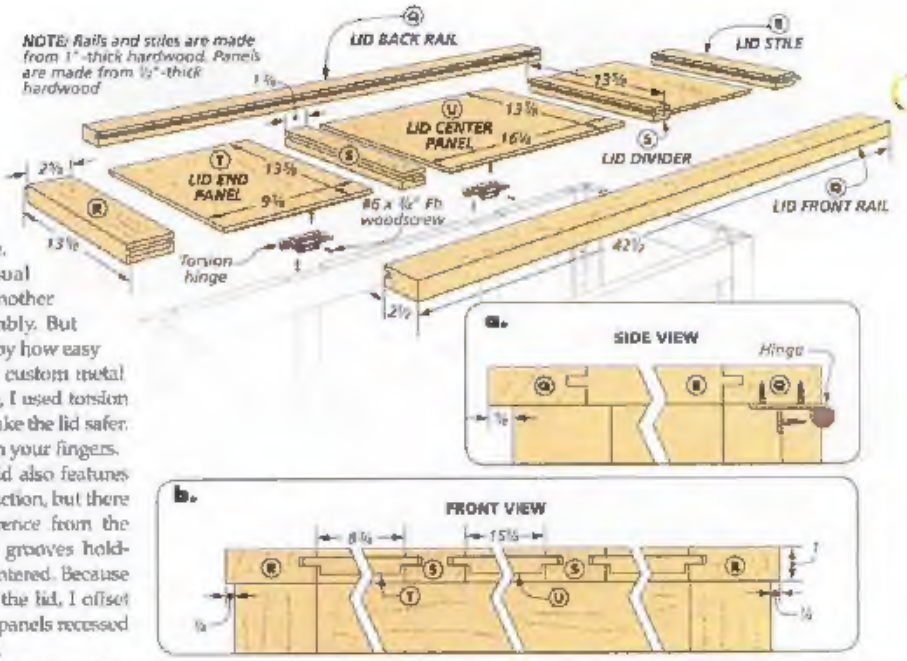
Tenon. You can cut another set of stub tenons using the dado blade buried in an auxiliary fence.



Tongue. The outside edge of the rails needs a tongue to fit into a groove in the front and back of the chest.



A sturdy LID



At this point, the chest just needs a lid and some hardware to complete the main case. There's nothing unusual about the lid. It's just another frame and panel assembly. But you might be surprised by how easy it is to create your own custom metal hardware. One last note, I used torsion hinges on the chest to make the lid safer. They won't let it drop on your fingers.

LID. It's true that the lid also features frame and panel construction, but there is one significant difference from the previous pieces — the grooves holding the panels are not centered. Because there are no corbels on the lid, I offset the grooves to keep the panels recessed ¼" evenly on both sides.

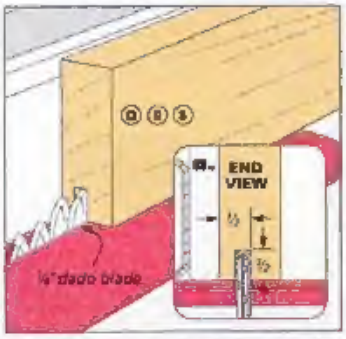
RAILS & STILES. After cutting the rails, stiles, and dividers to final size, you're ready to cut the joinery. The box below shows how to cut an offset stub tenon and groove joint that fits perfectly. It starts with the groove for the panels. The left drawing illustrates cutting the offset groove with a dado blade.

In the center drawing, you can see an easy technique for cutting matching offset tenons. The key is to set the dado blade just a hair below the groove you cut earlier. Then flip the workpiece over and change the blade height to match the groove on this side. This way, you're within one or two strokes with a hand plane of a perfect fit.

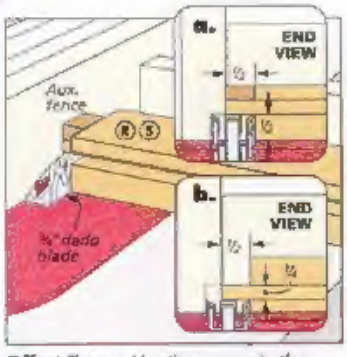
PANELS. Once again, you'll need to plane some of your stock to ½". Glue up the panels from narrower stock, and then cut the panels to final size. After that, rabbet the edges to fit into the grooves in the rails and stiles, as shown in the right drawing below. To prevent problems down the road, I stained and finished these panels just as I did the others before.

ASSEMBLY. Now you're ready to assemble and install the lid. But first, stain and finish the entire chest. Then attach the lid to the chest with the torsion hinges.

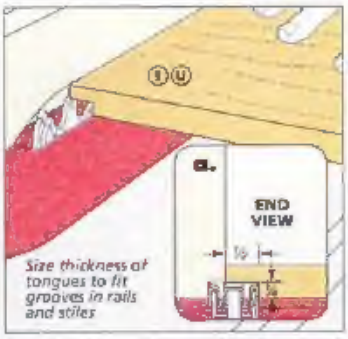
How-To: TOP JOINERY



Offset Groove. Set the rip fence to the dimensions shown and cut the offset groove in all the frame pieces.

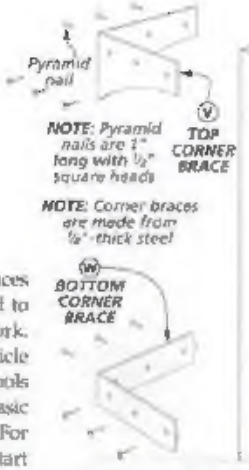


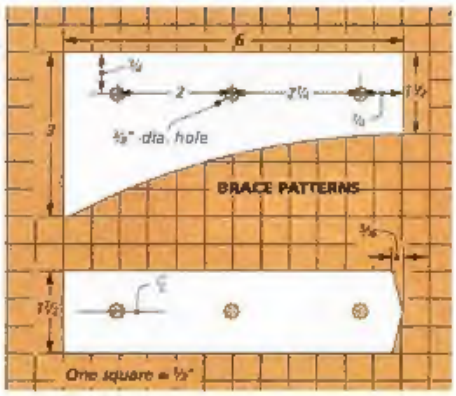
Offset Tenon. Use the groove in the stiles to set the blade height for cutting both sides of the tenon.



Panel Rabbet. After cutting the panels to final size, bury the dado blade in an auxiliary fence and rabbet all four edges.

Shop-made METAL BRACES





I chose to make my own corner braces from ⅛" sheet steel. There's no need to be intimidated by a little metal work. Before you start, take a look at the article on page 8. It gives you an idea of the tools you'll want to have on hand for the basic tasks involved in making the braces. For both the upper and lower braces, start by cutting the steel to final length (12").

TOP BRACES. The step-by-step photos at right guide your journey. It starts by marking the shape of the brace and the nail hole locations (see the patterns at right). I like to use layout fluid for work on metal pieces. It helps avoid any confusion between a layout mark and a scratch on the surface of the metal.

DRILL. With everything marked, start by drilling out the nail holes at the drill press, as shown in Step 1. Use a low-speed setting and a few drops of oil on the workpiece to lubricate the bit.

CUT TO SHAPE. You can cut this mild steel to shape using a steel-cutting blade in a jig saw. By mounting the steel to a piece of wood, you support the edges and help the blade cut cleanly (Step 2).

SCORE. There's one challenge with making steel corners — bending them to 90°. Step 3 shows how I scored the centerline on the inside face using an abrasive disk in a circular saw. This guarantees a good corner bend.

BEND. After scoring the line, all you need to do is clamp the brace down and bend it to 90° (Step 4).

CLEANUP. I used my random-orbit sander, followed by some hand sanding to clean up the metal surfaces (Step 5). This also prepares the metal for the patina solution you'll use later.

PATINA. Step 6 gives you an idea of how the spray-on patina works. You'll find more information about using it in Shop Notebook on page 31.

Test fit each brace and mark the location to drill pilot holes for the nails. Since the nails are a bit irregular, you'll need to take care to locate the heads properly so they're centered over the holes.

How-To: MAKE THE BRACES

Drilling. After marking the shape and hole locations, drill the holes. I used a backer board to support the metal.

Arc Cut. With a metal-cutting blade in the jig saw, use a plywood backer to help cut through the mild steel.

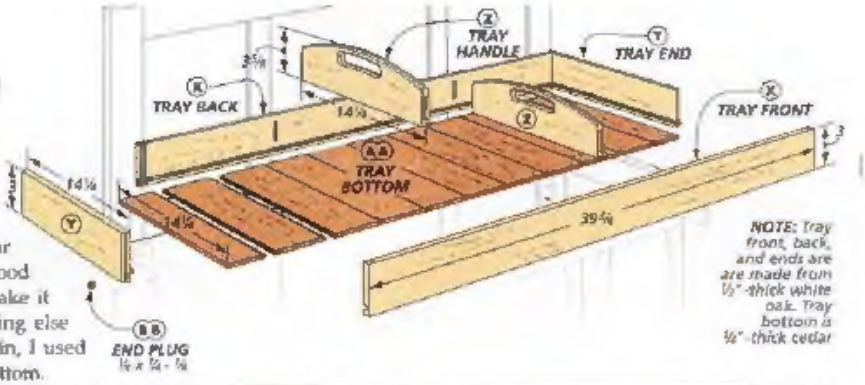
Score Centerline. I used an inexpensive abrasive blade in the circular saw to just over halfway through the brace.

Bending. The scored line makes it easy to bend the steel. Use a square to guide you for a perfect fit on the corner.

Sand. Sanding removes all the marking fluid and fingerprints from the surface of the metal in preparation for the patina.

Patina. A spray-on patina is all it takes to for an aged look. For more on the two-step process, refer to page 31.

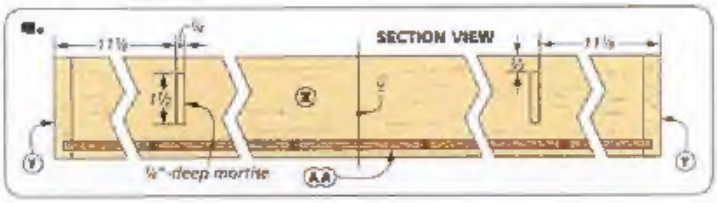
Making the TRAY



The original Stickley bride's chest had a handy pull-out tray that sat atop four wood stops. I replaced the wood stops with shelf pins to make it adjustable but left everything else largely the same. Here again, I used aromatic cedar as the tray bottom.

FRONT & BACK. The tray requires sturdy joinery to accommodate frequent lifting and replacing. So I decided to go with a joint that's both easy to make and very strong — tongue and dado. It's my favorite joint for drawers, having stood the test of time on several other projects. And since this tray is similar to a drawer, I think this joint is perfect for it. In addition, you'll notice that the tray front, back, and ends hold a groove for the bottom. The front and back also have mortises for the handles.

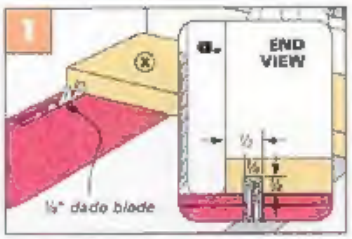
The drawings below serve as a guide as you set about making the individual pieces for the tray. Figure 1 shows how I used an auxiliary fence on the miter gauge to back up the dado cut and prevent tearout and splintering as the blade exited the workpiece. After that, you can cut the groove at the bottom of the front, back, and ends to hold the cedar bottom panel (Figure 2).



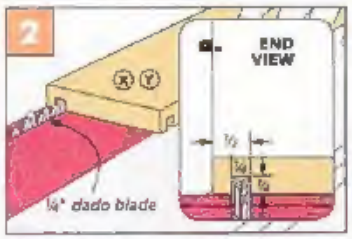
ENDS. Use the miter gauge to cut the tongues on the ends as in Figure 3. Check for a snug fit in the dadoes.

MORTISES. Now you'll need to lay out the mortises in the front and back for the handles. After that, get out your plunge router and clamp on a straightedge

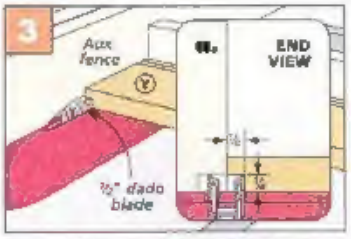
How-To: MAKE THE TRAY COMPONENTS



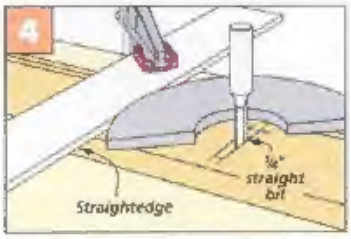
Dadoes. I installed an auxiliary fence on the miter gauge to cut the dadoes in the tray front and back.



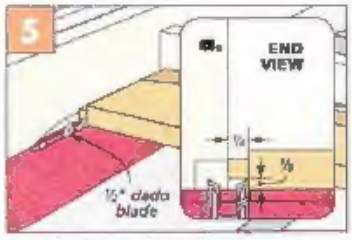
Groove for Bottom. Cut the groove for the bottom in the front, back, and ends using a dado blade.



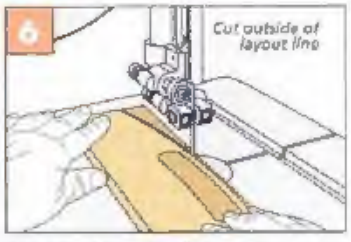
Rabbet. With the dado blade buried in an auxiliary rip fence, you can cut the rabbets on the ends to form the tongues.



Rout Handle Mortise. I clamped a straightedge to the workpiece and routed out the dadoes for the handles.



Handle Tenon. Cut the tenons on the ends of the handles using the dado blade buried in the auxiliary fence.



Band Saw Arc. After laying out the curve, cut the shape at the band saw, making sure to stay on the waste side of the cut.

to rout the mortises. (Figure 4). I just marked the top and bottom edges of the mortises. Then I routed to the line and squared the ends with a chisel.

HANDLES. I cut the two handles to final size and formed the tenons on the ends before cutting them to shape. This makes it easier to cut the tenons (Figure 5).

After completing the tenons, lay out the curve on the handle using the dimensions shown in the lower drawing at right. At the band saw, cut the gentle curve, staying on the waste side of the line (Figure 6, opposite page).

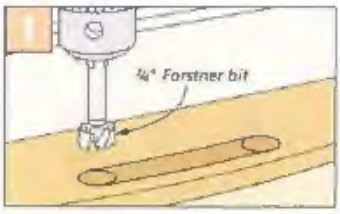
Now drill the two holes shown in Figure 1. The drawing below it shows the location. I used a jig saw to remove the waste in between the two holes to form the hand hold (Figure 2). A little hand sanding is all it takes to smooth the cutout. At the router table, rout the ⅛" roundover on the top edges and hand hold of the handle to make for a much more comfortable grip.

BOTTOM. Glue up the ¼"-thick cedar panel and cut it to final size. Dry fit the tray bottom by installing the two ends and the front and back. Then finish the tray parts before installing the cedar. After that, move on to final assembly.

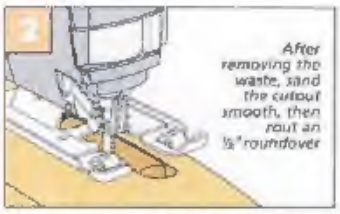
PLUGS. Finally, I installed four small plugs to fill the holes left by the grooves in the front and back. After applying the final stain and finish, the chest is ready to go (leave the cedar unfinished).

This is one of those projects that is likely to be made as a gift. The lucky recipient is sure to treasure it for life.

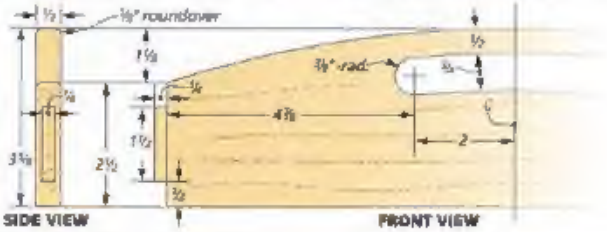
How-To: FORM THE HAND HOLD



Drill. Drill the two starter holes at the ends of the hand hold. A piece of scrap underneath prevents tearout.



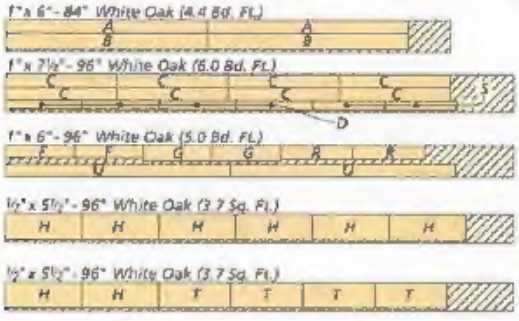
Jig Saw. Now you can remove the rest of the waste by cutting the arcs between the holes with a jig saw.

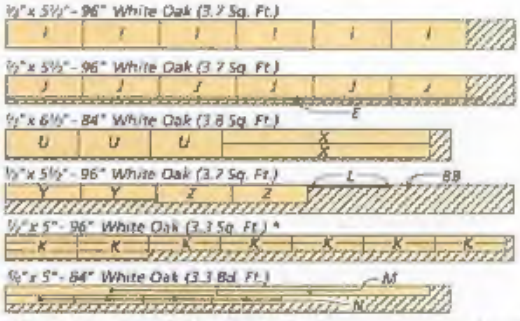


Materials, Supplies & Cutting Diagram

A	Front/Back Top Rails (2)	1 x 2½ - 38	**L**	Filler Strips (8)	⅛ x ½ - 2
B	Front/Back Bottom Rails (2)	1 x 3 - 38	**M**	Bottom Rails (2)	¾ x 1¾ - 40
C	Stiles (8)	1 x 2½ - 21	**N**	Bottom Stiles (4)	¾ x 1¾ - 13
D	Dividers (4)	1 x 1¾ - 14½	**O**	Bottom End Panels (2)	¼ x 9⅝ - 13
E	Splines (4)	¼ x 7/16 - 21	**P**	Bottom Center Panel (1)	¼ x 16¼ - 13
F	Side Top Rails (2)	1 x 2½ - 13	**Q**	Lid Front/Back Rails (2)	1 x 2½ - 42½
G	Side Bottom Rails (2)	1 x 3 - 13	**R**	Lid Stiles (2)	1 x 2¾ - 13⅝
H	End Panels (4)	½ x 9¾ - 14½	**S**	Lid Dividers (2)	1 x 1¾ - 13⅝
I	Center Panels (2)	½ x 16¾ - 14½	**T**	Lid End Panels (2)	½ x 9¾ - 13⅝
J	Side Panels (2)	½ x 12⅝ - 14½	**U**	Lid Center Panel (1)	½ x 16¾ - 13⅝
K	Corbels (16)	5/16 x 1½ - 13½	**V**	Top Corner Braces (4)	⅞ steel 3 x 12
			W	Bot. Corner Braces (4)	⅛ steel - 1½ x 12
			X	Tray Front/Back (2)	½ x 3 - 39¾
			Y	Tray Ends (2)	½ x 3 - 14¾
			Z	Tray Handles (2)	½ x 3⅝ - 14¼
			AA	Tray Bottom (1)	¼ x 14¼ - 39⅛
			BB	End Plugs (4)	¼ x ¼ - ¾

- (48) ½" x 1" Pyramid Head Nails
- (2) 60 Inch/Pound Torsion Hinges
- (4) ¼" Shelf Supports
- (8 oz.) Japan Brown Patina
- (8 oz.) Metal Oil Finish





ALSO NEEDED: One (1) 15 sq. ft. box, Cedar Plank Paneling (O, P & AA)

* Part K is planed to a final thickness of 5/16"

Adding a Patina

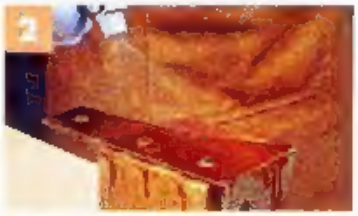
Adding a patina to the metal parts is a great way to give the bride's chest on page 32 an antique look. Best of all, it's very easy to do. You can find out where to get the materials on page 51.

CLEAN & SAND. Before you start with the chemicals, you'll need to give the metal a good cleaning and sanding. I started with mineral spirits to remove any film on the steel (there's often an anti-rust coating). A random-orbit sander is perfect for a good scrubbing (Photo 1).

SPRAY-ON PATINA. In Photo 2 you can see how to spray the solution. I used a block of scrap to hold the brace up off the bench. You'll need to let the fluid pool and sit overnight to develop the color.

OIL. The last step, shown in Photo 3, is to brush on a couple coats of oil to protect the patina from chipping. No further finishing is needed.

I used 60-grit paper first, then 100-grit to sand the fresh metal and rough it up a bit for the



The solution starts working as soon as you spray it on. Flood the surface, then let it sit overnight.

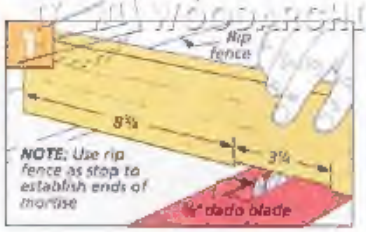
A foam brush is perfect for applying the oil topcoat. Give it two coats to protect the patina.

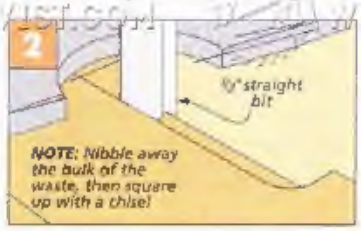
Hinge Mortise

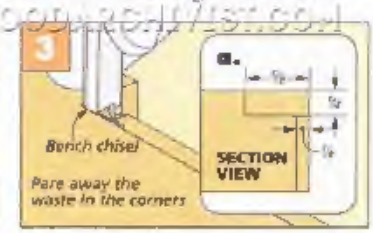
The torsion hinges I used on the bride's chest are great for keeping the lid from slamming shut. They will hold the lid open at any angle. On top of that, they're a breeze to install. You only need to mortise the top rail on the back.

TABLE SAW. Start by laying out the hinge position. Then you can remove most of the waste in between the marks using a dado blade in the table saw and the miter gauge (Figure 1). I used the rip fence as a stop for the inside edge.

ROUTER & CHISEL. Figure 2 shows how you can rout away most of the waste for the barrel of the hinge. After that, pare down to the layout line with a chisel (Figure 3). Then all you need to do is install the hinges with screws.







Corbel Installation

The decorative corbels on the bride's chest complete the Craftsman-style look of the piece. But installing them was kind of tricky. The problem is, you don't want to glue them to the hardwood panels or they could separate from the stiles when the panels expand and contract with seasonal changes in humidity. The solution is to glue them to the stiles only.

FILLER. For this assembly, I made a hardboard filler that acts as a temporary shelf to hold the corbel in place (Figure 1). I made the filler by cutting an extra-wide hardboard blank. Trace the curve of the corbel onto the hardboard and cut it at the band saw. Then fit the filler in the groove in the stile and glue the corbel in position (Figure 2).